WST, Inc.
5520 Parkwood Circle
Bessemer, AL 35022

MATERIAL SAFETY DATA SHEET

I. IDENTIFICATION

Product:	DCF-480
General Description:	KCl Substitute/ Temporary Clay Control
Chemical Family:	Blend
Revision Date:	12/02/2011
Primary Hazard:	May Cause Irritation
24 hour Transportation Emergency:	1-800-255-3924 (ChemTel)

HMIS Rating	
Health	1
Fire	0
Reactivity	0
Personal Protection	B

Rating Scale
4 = Extreme
3 = High
2 = Moderate
1 = Slight
0 = Insignificant

II. HAZARD IDENTIFICATION

Our hazard evaluation has identified the following chemical ingredient(s) as hazardous. One or more component is being claimed as a trade secret under OSHA's Hazard Communication Rule, 29 CFR 1910.1200. Consult section 14 for the nature of the hazard(s).

III. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient(s)	CAS Number	Approximate Wt.

This Product Does Not Contain Any Regulated Hazardous Ingredients

IV. FIRST-AID MEASURES

EYES: Flush with water for at least 15 minutes while holding eyelids open. Call a physician if irritation persists.

SKIN: Remove contaminated clothing. Wash exposed area with soap and water for at least 15 minutes. For a large splash flood body under a shower. Call a physician if rash or other symptoms develop. Launder clothes before reuse.

INGESTION: If victim is conscious, immediately give victim several glasses of water and induce vomiting. Keep head below hips to avoid aspiration. Give water until vomitus is clear. Call a physician. If possible, do not leave victim unattended.

INHALATION: Remove to fresh air. If breathing is difficult, administer oxygen. Treat symptoms. Keep victim warm and quiet. Seek immediate medical attention.

CAUTION: If unconscious, having trouble breathing or in convulsions, do not induce vomiting or give water.

Note To Physicians:
Based on individual reactions of the patient, the physician's judgment should be used to control symptoms and clinical condition.

V. FIRE-FIGHTING MEASURES

Flash Point:	>325°F
Lower Explosive Limit:	No Data Available
Upper Explosive Limit:	No Data Available

Extinguishing Media: While this product will not normally support combustion the use of water fog, dry chemical, foam, carbon dioxide or other extinguishing agent suitable for Class B fires is recommended. Use water to cool containers exposed to fire. For large fires, use water spray or fog, thoroughly drench the burning material.

Unusual Fire And Explosion Hazards: May evolve CO, CO_2 and/or NO_x under fire conditions. Containers exposed in a fire should be cooled with water to prevent vapor pressure buildup leading to rupture.

VI. ACCIDENTAL RELEASE MEASURES

If released into the environment, see CERCLA in Section 14.

VII. HANDLING AND STORAGE

General Handling Precautions: Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Ensure containers are properly secured before moving.

Storage Information: Storage temperature: Ambient recommended. No known minimum; keep containers closed and away from moisture.

Shelf Life: No known limit. Discoloration may occur for liquid products. Use within 1 year recommended.

Special Sensitivity: None

VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection: Respiratory protection is not normally needed under typical use and handling conditions. If it is possible to generate significant levels of vapors, mists or smoke, a NIOSH approved or equivalent respirator is recommended. For large spills, entry into large tanks, vessels or enclosed small spaces with inadequate ventilation, a positive pressure, self-contained breathing apparatus is recommended.

Ventilation: General ventilation is recommended. Additionally, local exhaust ventilation is recommended where vapors, mists or aerosols may be released.

Protective Equipment: Wear impermeable gloves, boots, apron and face shield with chemical splash goggles. A full slicker suit is recommended if gross exposure is possible. No exposure guidelines have been established by ACGIH or OSHA. No IDLH level has been established by NIOSH.

The availability of an eye wash fountain and safety shower are recommended. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse.

IX. PHYSICAL AND CHEMICAL PROPERTIES

Apperance:	Clear Liquid	**Initial Boiling Point:**	220°F
Odor:	Mild	**Flash Point:**	>325°F TCC
Specific Gravity:	1.103	**Vapor Pressure:**	5 mm Hg @ 100°F
Density:	9.2	**Vapor Density:**	>1.0 (Air = 1.0)
pH (neat):	6.5 – 8.0	**Evaporation Rate:**	
Viscosity:	~25 cst @ 100°F		
Solubility:	Water Soluble		
Pour Point:	-20°F		

Note: These physical properties are typical values for this product and not specifications.

X. STABILITY AND REACTIVITY

Incompatibility: Avoid contact with strong oxidizers (eg. chlorine, peroxides, chromates, nitric acid, perchlorates, concentrated oxygen, permanganates) which can generate heat, fires, explosions and the release of toxic fumes.

Thermal Decomposition Products: In the event of combustion CO, CO_2 and/or NO_x may be formed. Do not breathe smoke or fumes. Wear suitable protective equipment.

XI. TOXICOLOGICAL INFORMATION

Toxicity Studies: No toxicity studies have been conducted on this product.

XII. ECOLOGICAL INFORMATION

Ecological Studies: No ecological studies have been conducted on this product.

XIII. DISPOSAL CONSIDERATIONS

In case of transportation accident, call the emergency response phone number: 1-800-424-9300

Spill Control And Recovery:
Small Spills: Contain with absorbent material, such as clay, soil or any commercially available absorbent. Shovel reclaimed liquid and absorbent into recovery or salvage drums for disposal. Refer to CERCLA in Section 14.

Large Spills: Dike and prevent further movement and reclaim into recovery or salvage drums or tank truck for disposal. Refer to CERCLA in Section 14.

For large indoor spills, evacuate employees and ventilate area. Eliminate all sources of spark or flame. Those responsible for control and recovery should wear the protective equipment specified in Section 10. Ventilate area keep unnecessary people away, isolate hazard area and deny entry.. Refer to Section 14.

Disposal: Not considered a hazardous waste under Federal Hazardous Waste Regulations (40 CFR 261). Product solutions should be treated in a wastewater treatment plant after securing treatment plant acceptance. Absorbed solution should be land filled after securing Environmental Regulatory Agency and land fill operations approval. Consult state and local regulations regarding proper disposal as they may be more restrictive or otherwise different from Federal regulations.

XIV. TRANSPORT INFORMATION

The proper shipping name and/or hazard class for this product may vary according to packaging, properties and mode of transportation. Typical proper shipping names for this product are:

All Transportation Modes:	Not D.O.T. Regulated
UN/ID Number:	None
Hazard Class:	None
Packing Group:	None
Flash Point:	>325°F
Hazardous Components:	None
RQ lbs:	None
RQ Component(s):	None

XV. REGULATORY INFORMATION

The following regulations apply to this product:

Federal Regulations:

OSHA's Hazard Communication Rule, 219 CFR 1910.1200: This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

PSM: This product is not subject to Process Safety Management (29 CFR 1910.119).

FIFRA: Not Applicable

TSCA: On TSCA inventory

CERCLA: Reportable Quantity – None (40 CFR 302.4)

SARA TITLE III: Section 302 Extremely Hazardous Substances – None (40 CFR 355)
Section 311/312 Hazardous Categories – None (40CFR 370.2)
Section 313 Toxic Chemicals – None (40 CFR 372.65)

RMP: Not listed under the Risk Management Plan (40 CFR 68)

RCRA: If discarded in purchased form, this product is not a listed or characteristic hazardous waste. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal whether a material containing the product or derived from the product should be classified as a hazardous waste (40 CFR 261.20-24).

CWA: Release into a waterway may require reporting to the National Response Center @ 800-424-8802 (40 CFR 116.4)

FDA/USDA: Follow Good Manufacturing Practice (GMP)

State Regulations:

California Proposition 65:
This product does not contain any chemicals which require warning under California Proposition 65.

There are no known additional requirements necessary for compliance with State Right to Know Regulations.

XVI. OTHER INFORMATION

The information accumulated herein is believed to be accurate based on the information provided, although no guarantee or warranty, either expressed or implied is made as to the accuracy or completeness of this information, whether originating with this company or not. Recipients are advised to confirm in advance of need that the information is correct, applicable and suitable to their circumstances. The conditions or methods of handling, storage, use and disposal of the product and container are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage or use of this information or product. If the product is used as a component in another product, this information may not be applicable.

Prepared By: J. Pritchett

Reviewed By: J. Sasser

DCF-480

Clay control agent (temporary); Liquid KCl Substitute

General Information

DCF-480 is a specialized liquid product designed specifically for use as a replacement for bagged potassium chloride (KCl).

- provides excellent shale and clay control without the logistics, handling and mixing problems associated with large volumes of bagged solid KCl
- may be used in fresh water, acid or brine systems
- can be added "on-the-fly"
- compatible with all gels, crosslinkers and breaker systems typically utilized in well drilling, stimulation and work over operations
- does not adversely affect formulation wettability
- non-foaming
- does not affect fluid pH
- compatible with acid corrosion inhibitors.

DCF-480 is composed of a sophisticated, mildly cationic complex that functions as KCl to control shale and clay hydration. Unlike KCl, DCF-480 may be easily utilized in "on-the-fly" systems to eliminate pre-mixing and leftover brine disposal problems. If the product is mixed in fresh water and no salts are added, the fluid can be easily disposed without adverse effect on the environment. A 2% KCl equivalent solution of DCF-480 contains only 165 ppm chloride. Use of DCF-480 significantly reduces the risks and negative environmental impact associated with the use of KCl fluids.

Suggested Formulation

DCF-480 is a finished product that is ready for field application. It may be utilized as-is or diluted 50:50 with fresh water, if desired.

Application Information

DCF-480 is typically applied at a concentration of 0.5 to 10 gallons per 1,000 gallons (gpt) of fluid depending on the percent KCl being replaced, shale and clay quantities present in the well bore, and the operation being performed. *A load rate of 1 gallon of DCF-480 per 1,000 gallons of water will provide a functional equivalent concentration of 2% KCl.*

Typical Physical Properties

Form, @ 70°F	Liquid
Density, (lbs/Gal)	
9.2	
Flash Point, °F (TCC)	>200
Pour Point, °F	-40
Solubility	
Fresh Water	Soluble
High TDS Brine	Soluble
Hydrocarbon	Insoluble

Shipping and Handling

DCF-480 is available in drums, totes, and bulk. Avoid prolonged contact with skin. In case of skin or eye contact, flush exposed area with copious amounts of water. A material safety data sheet outlining proper handling is available upon request, or will be forwarded upon the purchase of DCF-480.

P.O. BOX 361827 • BIRMINGHAM, AL 35236 • 866-284-9244 • FAX 866-460-5535